THE NEON NEWS

LIFE IN THE GLASS LANE

NUMBER 8 SUMMER 1991

DINER: Universal Studios was a big bite of neon

By Renay Murray

The first project that I worked on for the Universal Studios Florida job was the "Mel's Diner" location. I remember thinking, "This will be a nightmare — so much glass — this looks like a giant puzzle... Will it ever all come together?"

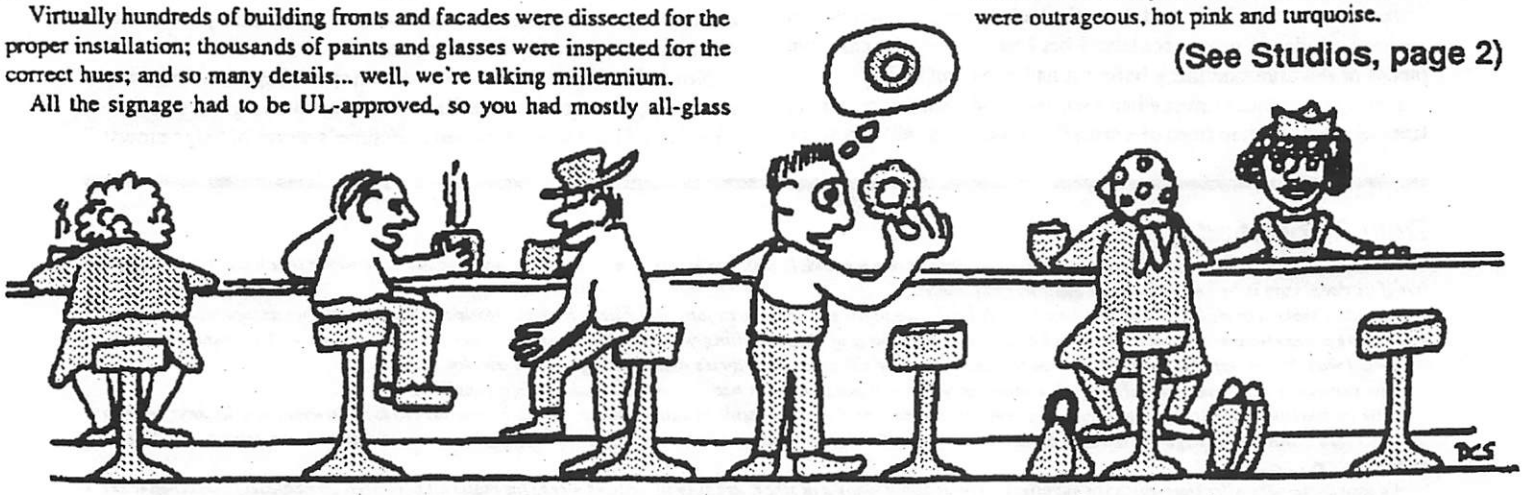
Looking back now, one of the most time-consuming portions of the work was the adjustments made in all aspects of each sign to accommodate its uniqueness. This took a lot of time on both the drawing table and the shop floor.

Virtually hundreds of building fronts and facades were dissected for the proper installation; thousands of paints and glasses were inspected for the correct hues; and so many details... well, we're talking millennium.

All the signage had to be UL-approved, so you had mostly all-glass housings. Sizes ranged from the new peewee 200 to the old reliable 300. However, each install was so different from normal construction, we sometimes had to make our electrode heights anywhere from six to eight-and-a-half inches long. This can make for a great handle on your glasswork, but on the other hand, an apostrophe can become very top-heavy.

The "Mel's" building sign itself looked like a huge cigarette lighter lying on its side in the shop. The design was a blend of old and new. There were open-face channel letters on the top saying "Mel's" and down the middle was a sequenced neon waterfall. The colors were outrageous, hot pink and turquoise.

(See Studios, page 2)



DOUGHNUT: A new shape for shop transformers

By John Dellinger

Editor's note: John Dellinger says that if he had had his way, he would have been a tubebender at age ten. His parents had other ideas, however, and now at forty he's finally learning the craft. Meanwhile, his business is designing fancy power transformers, and in the last year he has turned his hand to creating a lightweight, high-frequency bombarding transformer with built-in controls (the equivalent of a choke). These are not yet on the market but he is getting close to commercial production, as he has built and refined test models and applied for a patent. This is a "torroidal"-type transformer with a doughnut-shaped core, which emits far less electromagnetic radiation — the perils of which we have been reporting on and are still researching. We called John to ask some questions:

NN: So tell us about this transformer.

JD: Being a producer of transformers in the first place, I'm interested in trying to make a better transformer, and with a background in electronics and power electronics — switching-type circuits and higher-frequency circuits — I thought there's probably a way to get the weight down a lot.

It's absolutely adjustable. It's as easy to adjust as using a light dimmer. It uses a potentiometer — the same thing that's on your stereo, to turn the volume up.

The really nice thing about it is it's very small and compact and doesn't

(see Transformer, page 8)

(Studios, from page 1)

And the entire building was outlined with glass. There were three levels and each level was circular. The survey was a project in itself for the poor devil assigned to this task. I'm sure today that when he sees anything relating to the '50s, he shudders.

We used a combination alphabetical-numerical system to identify each piece of glass and also used special metal tags; this seemed to keep the confusion minimal.

Many of the signs I worked on were outrigger-style. This is very common in big cities, where streetfront spaces are small. The "New York streets" were the most challenging part of the job for me. There are close to 100 outrigger and window signs in this area.

And these are not your average OPEN or PIZZA types. We used an enormous amount of novial glass — so much that ruby red became old-hat to me. From working with thick-as-a-brick bromo blue to thin-as-a-pin classic gold, the ruby became a break for me.

One of my smallest signs, no bigger than a dinner plate, was stolen. It took many hours to make, but I felt flattered.

One of the hardest things was to weld novial and lead glass together. I did this a lot in the "Ballroom" outrigger. This sign was an overlay concept to depict a dancing woman and man. It was beautifully designed and the artists' conception worked well in the transfer to glass.

I ran into trouble with the necklace. It was a sort of diamond pendant with classic gold welded onto 3500 white. After much practice and figuring out just what I had to do (i.e., how fast each operation must be, how many double and/or triple bends, how much annealing, etc.) I made this thing.

As I was confidently proceeding on the second one — almost all these signs were double-faced — I took a little walk for some fresh air, and I happened to notice that the sign was in the electrical department being wired. And the artist had changed the woman to wearing a hideous pearl necklace. I bet I had trashed at least five pieces of the diamond thing before it had come out right.

It was one of those times when I wished I had spent more time in front of a desk than in front of a crossfire. I did eventually get some satisfaction though: the woman today is wearing my diamond necklace. There's an ugly pearl thing painted underneath it, but I assure you, you would have to have a ladder truck to see it.

When it came to lettering, I would say that the average size in the New York area was from 2 inches to 12 inches. Fortunately, this part of the project came to me all at once and I was able to concentrate on the intricacies of tiny script.

Now when you add in the factor that almost all of the glass used was novial, you have a challenge. Automatically all your fires must change. We use natural gas in my shop so the gas-air mix is about 10 to 1. With novial, I turn my gas mix up considerably. Not enough to stain the outside walls, but it's a soft fire.

The flame will be a bright yellow and often the glass becomes invisible in the fires. That's when you rely on years of holding hot glass and knowing just by the feel of it when it's ready to move.

I have found that by using soft fires and by making quick cuts when you have to, there is hardly any cracking with novial glass. It is also wise to try to avoid welds in worked areas. I believe it is because novial glass cools so quickly that one can hardly get a hot cut on the glass before it's too late.

Ordering materials for the Universal job was tricky at times. Some of the glass had to be custom made for the smaller sizes. Almost all the white glass had to be 3500 white, because it works best on film, and all of the areas are working film sets. I've already repaired some signs that were stored during the filming of a Sylvester Stallone movie. You need to be prepared for anything, so we have a considerable amount of stock on hand.

One of my smallest signs, which spelled out "Piano Rolls" no bigger than a dinner plate around a neon gramophone, was stolen. It took many hours to make, but I must admit I felt flattered.

My company really tried to recognize and minimize problems ahead of time. Sometimes weeks before the actual manufacturing of a sign began, we were called into the art department to discuss layout concept and any anticipated problems. I wish we could do this more often; working together like this seemed to intensify everyone's motivation and quality-consciousness.

Now when I look at new projects with special applications, colors and sizes, I look back at the Universal project as a great education. In a year of hard work, I gained a lifetime's worth of "sign smarts."

Dear Tubeheads,

Yeah, we're late. You would be too if you had a job like the one we had. It was five weeks of not much fun, and Ted hopes to never touch classic glass again. (Or if he does, may it be Technolux; see suppliers column.)

We didn't make it to NESA for the Benders Bitch & Bash, due to flu and some rush jobs. But Eileen Romano made a videotape, and we assure you one of life's more surreal experiences is watching a tape like that one. A roomful of people calling you by name, people you've never seen before — it's downright eerie, in a friendly way. We're sorry we missed it; it looked like the mix of silliness, war stories and sparring that we aim for here.

Now summer's here, and instead of light reading for you, we'll pass on some heavy complaints about sign suppliers:

Little inconsistencies between shipments of chemicals on the world market result in stained tubes; benders complain to labs, lawyers and lackeys who pass the buck (see Stain Bane, page 5). We lose patience when transformers go out and bad electrodes ruin tubes, then we lose money when refunds for defective materials don't arrive.

We lose customers after long-distance suppliers lie to us about what's in stock, keeping us waiting weeks for material promised immediately. And then there's the broken glass we have to pay for at the freight dock; the months waiting for damage settlements therefrom; the orders where the freight costs far more than the glass; and the orders that are billed for months after the COD bucks were handed to our UPS guy.

You big-city guys who can drive to suppliers to pluck perfect, competitively-priced materials off the shelf, count your blessings.

Cheers from the land of clouded-over eclipses,

Ted + Val

P.S. Thanks to David Sebesta for the cover drawing, and to Audie Foote for this issue's subtitle.

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Double your kilovolts, double your fun

By Ted Pirsig

Recently I was pumping a large job, eight-foot straight units by the dozen, and I thought, "There's got to be a way for me to increase my bombarder secondary voltage."

At 15,000 volts there just wasn't enough there to allow me to double-pump with any speed; I timed it at ten minutes of heating time. Ten minutes of standing there going "Yup, that's glass getting warm, yup, that's glass getting a wee bit warmer..." — there was no savings of time over pumping them singly.

I use one of the S280 powerline transformers rebuilt by B&B Transformer, who we've noted in past issues. I consulted with radio engineer Jeremy Storm about switching one of the bombarder input wires over to the center bushing (this is the "neutral" wire when the transformer is used on a powerline). In effect, this runs 240 volts into what was intended for 120 volts, and consequently kicks the secondary voltage up to 30kv.

He said no problem, that these "pole pigs" were incredibly overbuilt for what we use them for. With a neon shop duty cycle of only five minutes every ten at most and oil as internal insulator (any arcing inside does no damage, as the oil just fills back in when the arcing is done), they are "fairly indestructible."

So I switched over to the center bushing, and lordy guns! It's a different device entirely! My anti-hole-popping "spark gap" (a pair of wires, one to each high voltage lead, with an adjustable air gap between them) went from 7/8" to 2-1/8". The amount of air that I can leave remaining in a tube, when I first strike an arc, is far greater — enough so that in any situation I can heat the glass quickly.

To make clear the advantage of this I need to take a quick "time-out" for some discussion of bombarding technique, choke levels, etc.—perhaps the single-most controversial aspect of neon making. (Old pros, turn the page.)

When I learned neon bombarding at school, I was given no theory to fill my head with, just "turn this, watch that, then do this." This led to a rather inflexible routine — do like I learned, and don't go messing with any variables.

After some months on the job, though, I began to fill in some theory -- "what we're doing here is a balancing act between heating the glass and heating the electrodes, and our two controls are the amperage (via choke) and the amount of air remaining in the tube (via vacuum pump). How very nice it would be if a person had gauges with which to measure such things" — but no amount of pleading or fist-pounding ever convinced my employers of that.

So when I started my shop the first things on my list were a milliamp gauge, pirani gauge and torr gauge (0-20mm backfill guage). With these I could "see" for the first time. Helpful too was advice from Tom Fling at Eurocom on bombarding procedure. I continue to use this procedure (with some variations) today.

Essentially I heat the glass first and cherry-out the electrodes last, keeping the main stopcock closed any time the tube is lit. I was advised in neon school that it's better to have the unit fail on the bombarding table than in service, so I try to get the glass as hot as possible without melting it, something that I think helps with tube life and non-staining. When I used paper to check the temperature I'd try and burn the paper off; when using the temperature crayons I get them fully black about half way through the bombarding.

What becomes clear are some parameters of bombarding:

With remaining air high and amperage low, the glass (versus the electrodes) will heat. This is because the air is providing resistance to the flow of electricity, and it heats up, heating the glass.

The limiting factor here is how much air you can have remaining in the tube in order to first light it up— if you have, say, a 15 kilovolt secondary on your bombarding transformer and you want to pump two 8-foot units of 15mm glass (as in the above example) you can only first strike an arc at about 100 to 300 microns — way too low! You'll have orange electrodes when the glass is still cold. (Not to mention that you'll be sitting there spinning the main stopcock open and shut the whole time — as soon as the interior of the tube starts to degas, the pressure raises and the arc cannot maintain itself.)

By stepping up to 30 kilovolts, the arc will first strike around 2 or 3 torr — plenty high to be able to heat the glass quickly (even at only 150-200 milliamps), and maintain an arc while the pressure rises from degassing.

So I switched over to the center bushing, and lordy guns! It's a different device entirely! My anti-hole-popping "spark gap" went from 7/8" to 2-1/8". The amount of air that I can leave remaining in a tube, when I first strike an arc, is far greater — enough so that in any situation I can heat the glass quickly.

As soon as the air is drawn out, the glass will heat less, the electrodes more. With a low amount of pressure (around 500 microns to one torr) the electrodes begin to get red. Once fully red (but still dull red) I crank the choke up and cherry them out, at anywhere from 400 to 600 milliamps.

The catch to using the 30 kilovolt setting is that your millamperage output is reduced to about half. In the case of my 10KVA transformer, this translates to about 400 milliamps maximum — not enough to cherry-out the larger electrodes.

The answer to this problem is to switch back to the regular 15-kilovolt mode at this point, since there's no longer any need for the higher voltage (at 500 microns to 1 torr, 15,000 volts is plenty to maintain the arc, especially with the tube hot).

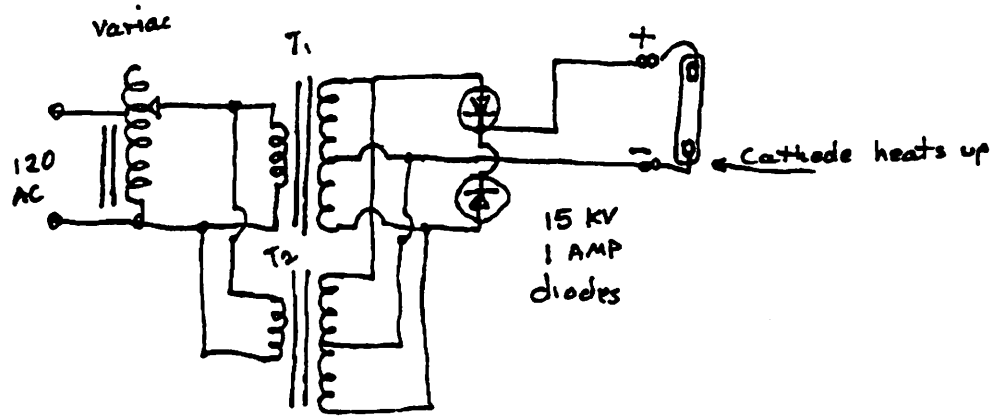
All that's needed for this is a handy-to-use-in-the-middle-of-bombarding heavy-duty switch, with one wire going to the side bushing and one wire going to the center bushing of the bombarding transformer. (The third wire on the transformer stays continuously connected to the remaining outer bushing.)

My personal solution was to put in a heavy-duty two-way contactor, whose coil is powered by 24 volts. This way I have a lightweight little switch next to the bombarder handswitch, with an indicator light to tell me when I'm in 30kv mode.

So my procedure now is to start in 30kv mode and heat the glass at around 4 to 6 torr. (If you don't have a torr gauge you can use a regular stopcock-style manometer by 1) pumping the tube down all the way, 2) closing the stopcock, and 3) releasing a small amount of air back into the tube.)

Then I'll switch over to 15kv with 250-300 milliamps, and drop the pressure to around 500 microns to 1 torr, get the electrodes dull

(see 30kv, page 8)



Low-power bombarding "off the grid" and a homemade magnetic field meter

By Jeremy Storm

I live in the jungles of Hawaii far from the power mains. I also like to make glass tubes glow. For AC power I have only a Honda 500-watt portable generator. Here is how to bombard tubes up to 12mm and 30 inches long using a power source such as this:

I'm using two 15,000-volt/30ma transformers in parallel, controlled by a variac (see wiring diagram above). I connect the secondaries to a pair of high-voltage diodes to create up to 7,500 volts DC at just over 60-ma. This arrangement allows me to heat one electrode at a time, with twice the heat for a given current.

Obviously I must reverse the bombarding leads and then do the other electrode. I am experimenting with the EGL #07 miniature electrodes—this bombarder will melt one in 14 seconds. When I am bombarding I must shut off the pump (a high vacuum is still maintained in the manifold) or the poor lil' Honda will stall.

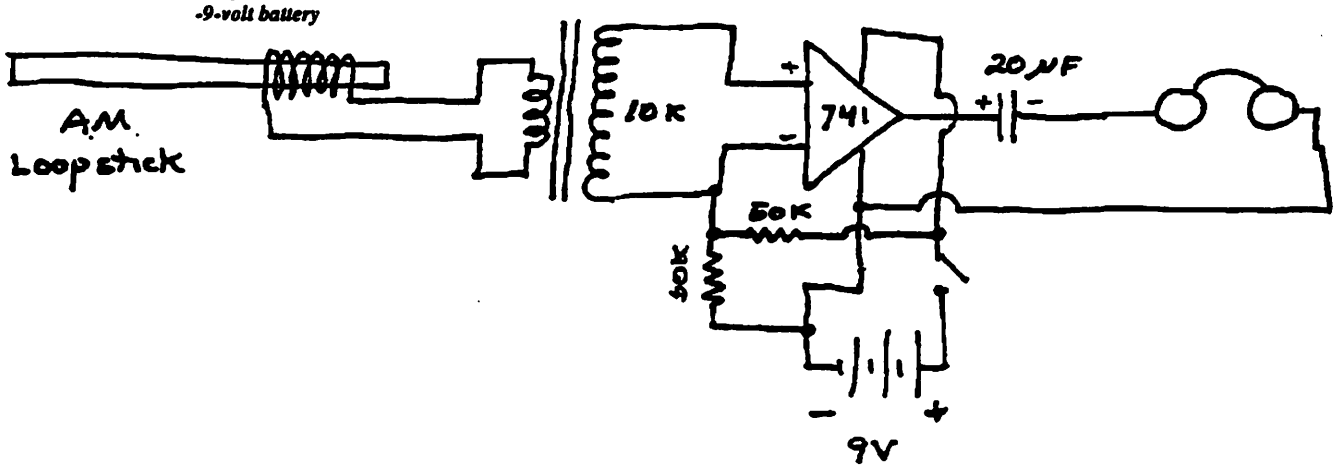
That's how we do it in the jungle.

PARTS LIST FOR ELECTRIC FIELD METER:

- *-A.M. Radio Loopstick*
- *-Audio impedance matching transformer, 180-ohm to 10 k-ohm*
- *-741 op amp*
- *-(2) 47k resistors*
- *-20 microfarad capacitor*
- *-earphones*
- *-9-volt battery*

Editors' note: Jeremy comes to neon work with a 25-year background in radio electronics. Currently an on-call repair engineer, he has lots of time for playing around with glass and torches and power supplies, and hardly ever stops by to visit our shop without some new tube or device or technique to amaze us (this week, it was a red 6-mil "WHOA" in his rear car window in place of a standard brake light). Any electronics questions we have, he sets us straight. When Ed DeZuzio sent several #07 electrodes, Jeremy saw them and his eyes lit up—finally, an electrode for backwoods bombarders!

After hearing Val worry out loud about electromagnetic fields (and complain that she couldn't get anyone out to measure them), Jeremy built an uncalibrated meter so we could "listen" to the relative strength of the fields around the house and shop. He shared this drawing so you all can try it too; says he's going to calibrate it one of these days with the instructions in Radio Electronics (April 1991; thanks to John Dellinger for sending it), which also gives plans for building a magnetic field meter. The article is based on an $85 kit available from A & T labs, P.O. Box 552, Warrenville IL 60555; a fully assembled and tested unit is $109.



Quality control: Testing tubes with helium

By Morgan Crook

From Masonlite, by way of Transco, here is a procedure for testing neon units with helium:

"After the normal bombardment procedure, when the tube is cooled down to approximately 100°C (212°F) and a high vacuum is obtained, admit 4 torr (mm/hg) of helium and set the bombarder to 500ma. The tube should run at this current for two minutes (the tube temperature not to exceed 200°C) without any material change in the bright golden color of the discharge.

"If a rapid change in color does occur, it means either there is a leak or that impurities are still being released from this section. The color change will show up in colors from white to pink to blue, indicating the degree of impurities from slight to significant. Impurities given off from the glass usually show as a color change in the center of the tube, whereas impurities from the electrodes usually occur at or near the electrodes.

"If any color change does not return to the bright golden color it may be then necessary to repeat the previous bombardment. If no color change occurs evacuate the helium, allow the tube to cool under high vacuum and fill with the appropriate gas (neon or argon)."

What we have found out so far:

1) This process can greatly speed up finding the problem in a troublesome tube — vacuum system, glass or electrodes.

2) Assuming that the electrode manufacturer's recommendations have been followed — and the tube was processed correctly — there are big differences between manufacturers' electrode quality.

3) If you are considering repeating the process (second paragraph of instructions), check the condition of the electrodes to see if they can tolerate it.

Benders' bane: Blues that stain

***Editors' note:** We interviewed "Deep Blowhose" (who wishes to remain anonymous) for this tale of detective work and legal action over bad tubing.*

NN: What's the story?

DB: [We had] calcium tungstate problems with glass for several months, and finally reached a settlement with the company for a "bad batch" of blue, green and turquoise...

Technicians from two glass companies and our tests say poor-quality chemicals from the world market [are responsible for the staining]... I've been bending glass for twenty years and I've never seen anything like this... After testing every step of the process, we contacted the glass maker... The glass company technicians blamed the electrodes first, but that ain't it [because DB had tested three kinds of electrodes]...

A Wisconsin beer-sign company now washes all the blue and green glass they use, because that is recommended; they heard it at NESA.

The contamination problem — that's what I'm calling it — it really destroys the little signs, and that's what I've been working on, the real small custom beauties. They get a stain and it will grow and grow.

And on [a big account], you don't want them going black within the first year... Like I say, it's just terrible. Within two hours the glass was black... I can't afford that.

We have tried all kinds of things. That thing about over-amping them, I shot that down a few weeks ago, pulled records on, oh, about five of them that had started showing these stains, to double-check and make sure they were properly loaded. And they were, fortunately...

But there's this whole quality-control routine you have to go through, and make sure you're 100 percent [correct] before you open your mouth. Because, as I've found, neon is a big community, but it's also a small community — and those people will flip right out if you start openly accusing them.

And they will call your suppliers, and they will give your supplier hell. That's happened before... You gotta really cover your ass, and make sure all your stuff is in gear... And I've been calling shops and reading and researching, and going over and over everything I can find...

I couldn't even fly with that stuff in my hand up to the laboratory and say, "Look at this, look what it's doing to my business," because they'd laugh me right out of there... There are just so many ways they can pick you apart, and if you're not real technical [minded]... I've talked to these technicians at the lab, and they talk molecules, man, they talk electrons and protons and all this stuff and I'm going "Hey! hey! I've done this for twenty years and I don't know this scientific wording, but I can give you a layman's lecture if you're willing to listen." But they're not really willing to listen.

I've been trying to get ahold of [name withheld] — he's a master, he's got fifty years of experience, and I've been trying to get him to do a walk-through of my shop, just to tell me if I'm doing something wrong.

Because that's how bad it is: with all my years of experience, I'm thinking of trying to find Daddy!

Trode testing hits the road

...I've used both types (EGL and Eurocom) this past week and Brian (Eriksen) has bombed the Eurocom trodes. The Eurocom trodes are a delight. Never before had I seen such a RED shell during bombing.

The EGL premium trodes (gold label on the box) were also very RED. The Eurocoms came up to the ultimate REDNESS sooner than the EGL but they both resisted deliberate sputtering attempts (all-out choke and negative microns).

EGL's trodes have a nice heavy pair of lead-in wires longer than Eurocom's (1.5" - 1.25") and they both resisted the "how many times can I twist, pull and try to remove this wire" test extremely well. In fact, after many attempts, the lead-in wires are still intact on both trodes.

As far as transportation, both trodes handle the road very well. This test can easily be conducted with six- and seven-foot borders and a pickup truck. There was much more electrode chatter than with a non-collar trode and no cracks this trip.

I will confess though that neither brand is particularly fond of four-wheeling or curb-hopping!

— Ed DeZuzio

Voltage Vikings unleash Black Box on neon

By Ed DeZuzio

Editors' note: Here's a sampling from Ed DeZuzio's great letters (which arrive handwritten in block capitals and various colors of ink and accompanied by electrodes, photos and other stuff):

(April 15) I can't believe it only took one day and $50 worth of parts for Larry Kanter to make his Select-o-former! I'm up to 75 smackaroos and three weeks!

It's coming out nice though. In experiments with what I've done so far, I've concluded that 110v hurts just as much as 15,000 30ma, although my hair won't hold the curl as long with just 110v 15a. Ha, Ha, Agh!

Had an interesting Friday a few weeks back: 10mm clear tubing, overall length 6", overall width .5".

A.P.B.: Tubing has been seen arcing, melting and causing small fires and discomfort. If you should see this unit, approach with caution. It behaves unpredictably and is armed with 12c trodes.

Now if Spaceman Spiff wasn't busy deep-frying dumplings on Planet Zork I'm sure he would have answered this call for help. Instead, the Voltage Vikings from the Megawatt Galaxy arced in for some coffee.

With them they had the BLACK BOX. As they gave me the BLACK BOX the lights in the shop dimmed. (This could be very spooky but unfortunately there's a logical explanation. One of the Vikings spilled his coffee on the overhead florescent lights. I don't know why he was up there... Sometimes it's better not to ask.)

Where was I? Oh yeah, the BLACK BOX was a 1974 10k 60ma luminous tube power supply. So here I am, Brian by my side, we are both staring at #7 (the last unit that had been terrorizing us)...

Brian's brainstorm: Let's use the BLACK BOX to bombard the infamous unit #7.

Ed's epitome: Let's use the BLACK BOX to crush the infamous unit #7. Crush it into a quadrillion zillion billion million (and any other "illions" that would fit the instance) little pieces. Ah! Yes! SAND leaded crystal SAND! Yes! Ah! It even sounds good. In fact we can make money at this: "Wanted - any nightmarish glass. We'll take your headaches away. Call us and you too can find 'serenity in sand!'"

We went with Brian's brainstorm instead. We both had heard of units being bombed with conventional transformers but how do you do it?

That's the best part — basically the same way you bomb "normal" units. (You know, normal, not possessed or cursed by the dark storefront overlord.)

All you got to do is pull a vacuum (enough to light tube internally), let trans cook glass for 15 minutes — paper started to char at this point, about 145 C — you know the jive. Turn the primary off and give a quick turn of the main stopcock — energize and WA-LA! Trodes start to flatten, the shine goes away, and begin to turn red.

Another fifteen to twenty minutes and another turn of the stopcock and the infamous unit #7 was almost complete. Five more minutes the paper was a little more charred — 150-155C and the trodes were hot enough for me.

The infamous unit #7 gave in to the BLACK BOX, the very, extremely, "man this thing is heavy" BLACK BOX. I haven't seen the unit since. Hopefully it will stay that way.

(May 29) ...Guess what I found — the notes I took from the San Fran seminar on European luminous tube technology (led by Eurocom's Tom Fling and Masonlite's Frank Mohacsi at NESA):

After the introductions we were shown a video about luminous tubing and the Fantasy cruise ship... if I remember correctly, 14 miles of tubing, 12,000 transformers and 80,000 kilometers of GTO...

The narrator of the video went on to explain about 8k trans' being the largest allowable size in Europe. He claims that there is less arcing and radio interference as a result. That makes sense — found similar info in publications by transformer manufacturers also (Allanson, Jefferson). Most outdoor transformers there are 40 ma; 20 ma for indoor.

Speaking of ma: It seemed to be the general consensus of people I talked to that:

8mm — 10 ma trans
9-10 mm — 20 ma
12-13mm — 30 ma
15mm — 30-60 ma

If I knew this unwritten rule I must have forgotten it. The idea is that there is less surface area on smaller tubes to dissipate the heat — wa-la — smaller amount of heat from lower ma — no more sucked-in doublebacks please...

"Snaking is caused by hydrocarbon found in aluminum usually set free to fly by grinders and cutters." Best reason I've heard so far. (Although I don't have any aluminum in the shop except soda cans!) Also humidity is not a good thing for a glass shop — no kidding. It's not good for tubebenders either. Well, me anyway.

Clear glass needs more heat than coated glass because it's not baked. So instead of 225C shoot for 250-275C...

(June 22) Been working on a hot sample case also. Twenty-five different tubes, each with individual transformer, all mounted on a piece of porcelain enamel steel all switchable and interchangeable and set in a Harptone case. When it's complete it will definitely be the hottest...

(July 11) Enclosed are poloroids (polo players' hemmorrhoids?) of the sample box I've completed. A very non-economical sample box I might add (overall cost without labor about $1,300)... Upon completion I thought of several other ways to do the same thing but for a little less money. A giant sample rolodex perhaps? How about the same idea as the complete unit but one transformer and lids for the individual color compartments?

Maybe on the next one. Yes, there is another in the process right this second and if you take into account parallel universes and lifetimes I'm sure there is one more, at least, that is being started/finished the same very second I mentioned B-4.

Another project inspired by the Jazz Man (Jeff Kronmiller, maker and printer of cool T-shirts) and the Voltage Viking (Brian Eriksen) is the portable light table. Check this out 'cause it's cool, dudes and dudettes!

Materials: Tech 2000 3500v x 110v, 8 feet 12mm daylight white, one-and-a-half-square-foot of 1/4" white plex, a hardshell briefcase, and silicone or other flexible sticky stuff.

Tools: imagination, drill with 1/8" bit, imagination, bending and bombing equipment, patience, 16 oz. high-test coffee.

OK — got all the stuff? Good.

Trace out the plex to fit into the case. Cut it shy so it drops into the case. Mine press fit in which is good because it needs no other fastening and remains easily removable. Bend or remove the locking hinges out of the way of the plex. I removed the center rivet and left the fastening rivets. The hinges on the top half can be held in place (out of the way) with the sticky stuff. The lower hinge is

(see DeZuzio, next page)

High-voltage, high-frequency transformers

By Peter David

Solid-state transformers are the latest and the greatest — well, sort of.

First of all, high-frequency ionization of gases is not new. Tesla and others did it with mechanically oscillating circuits in the late 1800s. They used rotating contacts to make and break the primary coil of high-voltage circuits a few thousand times a second.

Today's versions use what's called an oscillating feedback circuit to do the same thing electronically, as many as 40,000 times times a second or more. Televisions, CRTs/VDTs and radar scopes use these transformers to generate the high voltage necessary for electron gun operation — basically a single-ended electrode with additional magnetic guidance and focusing circuits.

In the neon field, we are used to the ol' reliable core-and-coil, which itself turns on and off 60 times per second with the incoming AC power. All neon transformers need to turn on and off to create the spikes of magnetic flux that cause the higher voltage to be induced in the secondary windings.

In addition to high voltage, gases can be made to glow or ionize by high frequency. Core-and-coil transformers require the use of two electrodes in order for current to flow. The gas acts as a filament or carrier of the current to complete the secondary circuit.

High-frequency transformers are more like a radio transmitter, creating an electrical field between the high voltage/high frequency field and the nearest ground. By ground we mean the natural effect of the earth and its air to act as a "sink" or well for electrical energy to flow to. That's why lightning strikes the earth and why you don't want to touch metal when near high-voltage circuits. This electrical coupling though the air is called capacitance, and represents a build-up of energy across slightly conductive mediums such as air and its ambient moisture.

High-frequency transformers that have two wires create this field between the two wires, and so tubes attached to each electrode (but not to each other) create this field and light up. Sometimes more footage can be lit using two tubes (one on each lead, with no connection between them) instead of one. This is because there is more area for this capacitance effect to happen between.

This effect is also why you can't put your tubes on or near metal surfaces, as the tubes will create this capacitance effect between themselves and the metal, creating a voltage in the metal. Tubes held near a high-frequency transformer will sometimes light without being connected, due to the same phenomenon.

Now for some different types and their advantages:

First on my list have been the Tech 2000 MIDGETS, designed and built by Tom Skarvada in Carlsbad CA. Tom used to design avionics (electrical flying systems) for airplanes and really knows his stuff. Also, he has the creative wizardry that keeps him open to new ideas. He and his wife Laura have provided the first of the miniature RF (radio frequency) transformers and I think the most versatile.

Most RF or high-frequency transformers seem to do best at lower-than-normal pumping pressures. Tom recommends pumping tubes to between 4-6 mm of pressure as his tests have shown this to be the optimum performance range.

It is important to tune them to the tube by adjusting the set screw to 1/4 turn less than maximum brightness. This makes them run at the least amount of current and thus run the coolest. These run on 12 volts DC, and I put a DC ammeter in series with the primary as I tune it so that I can read this optimal low current versus optimum brightness. This also assures you that you are not exceeding the recommended limits of your DC power supply, and thus prevents burnout.

(Tech 2000 also makes a little "Wee One" that works like the midget, but is smaller yet and is not recommended for single-end use, due to lighter-weight insulation on the components. Their "Mini AC" is a 120 volt AC unit that works quite well, but is also meant for double-end use.)

Next on my list for miniature RF transformers is the PLUS 20 from Info Unlimited, Amherst NH. These little guys are pretty good, especially for the money, although they are not as powerful as the Tech 2000s.

One interesting feature is that you can join the secondary leads (it has only one) from several units together to increase performance. Double-ended tubes can be run by attaching one electrode to the heat sink on the unit. These are also 12-volt DC powered.

One thing common to most of these units is the necessity of proper ventilation and loading. The simplest way to load them is to let the tube, transformer and power supply run for 30 minutes or so. If any component is too hot to hold the palm of your hand against, it's overloaded. Simple cave-man stuff. Then Ogg say, "Too much load, maybe start fire!"

Next our friend Neon Dynamics. A pretty good unit. The units made before 1991 have a DC bias that causes the mercury in mercury-filled tubes to migrate slowly to one end. Kind of a drag, although they are no problem on neon-filled units. If you take them back to your distributor though they will replace them with the new 1991 units that do not have this problem. ***(Editor's note: Other manufacturers also have this "mercury migration" problem — Neon Dynamics was not alone.)***

They can only be used for single-ended use if you use tubes on both leads of sufficient length (four feet or so, each lead) so as to avoid overheating. Be sure to set the tuning screw for just enough brightness to do the job, and be sure to avoid metal nearby, as you will induce a good voltage in such parts. It's a good practice to ground any metal parts that do pick up an induced voltage. (In fact, a tube connected to ground will often light up, making use of induced voltages without direct connection to the transformer itself.)

All this info is, of course, subject to your own research and the manufacturer's recommendations. Other transformers are on or coming on the market, and should be tested for durability before you use them in any wacko ways.

I love to experiment and so have come up with these few tips for your high-voltage, high-frequency pleasure. Take care, literally.

(DeZuzio, from page 6)

hidden under the plex. Oh, if your case doesn't have a lip to catch the plex, review items one and three on the tools list.

The piece of interior fake leather (or real leather if you are into it) flap that is part of the paper/contract/sketch-holder thing on top (upper half of case) will keep the top from falling flat. Or see items one and three again.

Bend your glass into some sort of grid and bomb it. The trans is hidden behind the paper/contract/sketch-holder thing and the wires are snaked thru the fake or real leather flap and under the plex to your white luminous tube unit. The unit can be held in place by sticky stuff and be sure to insulate your trans to electrode connections! Place the pre-fitted plex face in and light it up man!

By this time you should or could be headed for your second dose of 16 oz. high test... Enjoy...

(Transformer, from page 1)

anywhere in the world — it should weigh less than 50 pounds.

It can also be used anywhere in the world, 50 or 60 hertz, at virtually any voltage that's going into it in the 200 to 250 volt range.

NN: What kind of price are you going to be asking for these?

JD: All I can say is I think it's going to be competitive with the more conventional choke-and-transformer units. I don't want to set a price on it yet — I just know that it's going to be very competitive.

I think we will have a 10kva unit that can be shipped UPS anywhere in the world -- it should weigh less than 50 pounds. It can also be used anywhere in the world, 50 or 60 hertz, at virtually any voltage...

It also has a couple of other little features. You know how when you bring in the contactors on a regular bombarder you get this terrible inrush of current, and if you have a current meter it will slam the needle and such? It doesn't do that. It has a "soft start" feature. Whatever level it's set at, over a fracture of a second it will bring it up to full power.

NN: Would a conventional milliampmeter work with it, being high-frequency?

JD: Yes it should — I haven't really done much testing with that, but I don't see any real reason why it wouldn't. There may be a slight inaccuracy.

NN: What kind of output voltage will it have?

JD: The design I'm working on right now is 20,000 volts at 700 milliamps. It's a 12kva. The one that I built and tested, before destroying it in experiments, was about a 5kva. The transformer would have taken more power but the drive electronics would not. So it was somewhat limited but it proved that it worked.

NN: What frequency are you using?

JD: It operates at 800 hertz. That's not a magic number — it's just an easily attainable number in a large power transformer. You know the little electronic transformers for the tubes run at better than 20,000 hertz. But they all generally have ferrite cores which are made for those higher frequencies. It's difficult to get a 10,000-watt ferrite core. I suppose one could be made at a higher frequency, but then with those higher frequencies things get more difficult to control in some ways; corona sparks and things like that. So I felt like the 800 was good. It gives a very efficient transformer.

NN: These are real low in terms of magnetic radiation, right?

JD: Yes. It will be lower for several reasons. I don't like promoting it as a "safe to use" bombarder, though. That's certainly a misnomer. There is no "safe to use" bombarder. The output's very lethal on any of them, and this is no exception.

It will be safer because of the lower radiated field, and it will be safe in that the control itself is safe. There's always the hazard — I wouldn't want to scare anyone, but there's always the hazard that the high-voltage side of any transformer can become shorted to the low-voltage side, putting that high voltage available to you, where you think you're dealing with 120 or 240 volts.

It should never happen — some transformers are designed where it'll never happen, and mine will be no exception — but I suppose it's possible, even with one of these pole-type transformers.

I might even build a digital milliamp meter into it. I've thought of having a little hand-held box with a controller push-switch, a knob for controlling the power, and a digital read-out.

<As one more anecdote from our never-ending quest for data on

(see Dellinger, next page)

(30kv, from page 3)

red, and finally cherry-out at 300-600 microns and 400-600 milliamps.

(As an alternative technique, one friend in the Midwest told me of a shop he visited where the man had an on-off switch for the bombarder — he would simply open the main stopcock, flip on the bombarder and walk away.

(Apparently his argon tubes showed a lovely orange on the curing table. When shown the dim purple of an argon-only tube (mercury not dumped yet), he said "I don't know about that color — looks pretty funny to me.")

Curious as to whether I was going to blow anything up, I called and spoke to Denny at B&B Transformer. He said, "If you were running it the other way, you'd probably have a lot of problems, but seeing as how you're running 240 volts into it, you're probably okay."

I also talked with transformer designer John Dellinger about running one this way and he said, "Possibly you would have a transformer that would make a lot of noise while it was run that way. What happens is the core in the transformer saturates; you end up with a lot of losses, power-wise — a lot of unnecessary heat, a noisy transformer — but it probably will work."

NN: "So what I'm looking at is inefficiency, but not necessarily hazard."

JD: "Well — it will draw an awful lot of current. When it goes into saturation the transformer will draw a lot more current than just operating as it's designed to operate. So you'll find that you may burn up wires, or circuit breakers may have trouble holding in, and the lights will dim a lot in the shop."

NN: "Even when choked down?"

JD: "That would make a difference, and probably make it work."

Until recently, many of the transformers that B&B sold had the center bushing removed, with a "blank" in place instead. I called them and asked why, and they said "When we first started to make 'em we left all three bushings in. But then we decided we would take them out. What was happening is that people were trying to ground that middle bushing and you can't do that. So it was tripping the circuit breakers."

Informed of this 30-kilovolt use of the transformer, they said that they could provide the missing component to people who'd bought the "blank" version from them in the past. "The unfortunate part for us is going to be that every one is a different make and we don't know which bushings go to which. If people do contact us we probably can send them a bushing, and hope that it fits. If it doesn't, we'll just have to send it back and try another."

Purchasers of new units from them can get them with the center bushing left in.

As a last refinement (in an endless world of endless refinements) I intend to contrive some kind of mechanical device that will automatically adjust the anti hole-popping spark gap, giving me a 7/8" gap in 15 kv mode and a 2" gap for 30 kv mode — some kind of solenoid and PVC-pipe contraption, you bet...

One final note of caution — you need to rigorously maintain safe distances from this beast, as it now has twice the power to reach out and zap you.

Personally I can't imagine having my hands on a manifold where the arc is flashing back, or for that matter even having a "safety switch" setup that allows a hand to be free (see NN#2 for a two-handed arrangement.)

And, as always, don't mess with this stuff if there's anything you don't understand perfectly; we don't want to hear about any deadly innovations.

Better goods: More suppliers from all over

"ColorTubes" classic glass is Italian-made and machine-drawn, and is imported by **Technolux Inc., 5716 3rd Ave, Brooklyn NY 11220. (718) 439-1222, fax 439-0497.** It is being distributed through regular wholesalers; call and ask for the one nearest you, as well as for a sample pack.

It's far easier to work than hand-drawn classic glass, and pricing should be competitive, as machine-drawing reduces labor costs. The colors are quite pretty and the coatings are high-quality rare-earth phosphors (no calcium tungstate to stain). They have quite a range of sizes too, from 6 to 22 millimeter, although they say that the smaller and larger sizes are limited to stock on hand right now.

Several people mentioned a Texas company that sells low-cost core-and-coil **"Lonestar" brand transformers.** They're epoxy-filled (no messy tar) and available in 4,000- and 5,000-volt models starting at $16 each, with quantity discounts. **SWITCHCO, 2414 120th St., Lubbock TX 79423. 1-800-365-4548, fax (806) 745-4036.** They also carry Neon Dynamics transformers at good prices.

Jim Piver wrote us a year or so ago saying that his background was in race-car engineering, but a buddy got him interested in neon and so he started looking at the equipment. He soon concluded that the "carburetion" of the torches was mighty crude, and decided to develop his own setup, one with a single lever to control air and gas adjustment simultaneously. The latest word from him is:

"The fires are done. Sorted out, pared down and dialed in. One central power stand with a ribbon (16") on top, two torch taps and a crossfire/cannon (either) tap. Crossfire/cannon is freestanding on a matching stand. Central w/ribbon weighs 52 pounds, cannon w/stand weighs 20 lbs. It works great and it's truly portable. Now if I could just figure out how to sell 'em?"

He's applying for a patent, and in the process has this to pass on: "Know the difference between a run-over skunk and a run-over attorney? There's skid marks over the skunk."

Jim can be contacted at **Pro Mech Engineering, 23888 Connecticut St. #5, Hayward, CA 94545; (415) 887-2123.**

Way back in issue #2 there was a request from Pat Meyer for a good source for sliding-collar-type electrode holders. We just received information from **Laura Bauer** at **Lightning Line Neon, 4827 S.E. Division, Portland OR 97206. (503) 231-1113.** They make 10mm, 12mm and 15mm holders for $10 each, or all three for $28. There's also a $2 charge per order for shipping and handling.

These look well-made, identical to the type I've been using for 5 years. (Thanks for the sample, Laura — how did you know my 10mm was missing?) They are 12" long — pretty darn long. I'm used to a 6" model — but a person could easily cut them down.

Available from **Virgil Ellis** at **Bend Aid Products, 8413 Quebec Dr., Fort Worth TX 76108 (817) 246-5629** is a three-headed cannon torch, the "Pro III Longhorn." These are hand made one at a time, price $365 + shipping and handling.

These come recommended by a bender we know and trust (who wishes to remain anonymous) who says "I like to refer to the burner as 'user friendly' for a couple reasons. With everything fully adjustable I have been able to use different burner types on the center riser, for example a blowpipe (5" flame) and a two-inch ribbon burner. The center of the combined flame is offset to reduce reach by the glass worker. Mixer manifold can be set up for left or right hand operation and the supporting base is a disc you can step upon without tripping. I've worked glass tube size from 10mm to 25mm with excellent results."

As mentioned last issue, **Precision Neon Laboratories** sent us a "video catalogue" for review. Finally I borrowed some time on a friend's VCR to check it out. For you movie fans who really want a review: The presentation is a tad dry, with long still shots of equipment laying there and being pointed to. But technically, it's useful and informative.

Some things I took issue with — such as Mark Snyder saying that metal manifolds are no good (without mentioning stainless ones). Yet other things made me sit up and take note, such as his advice against using high vacuum grease with silicone, as it spreads around the system and forms a layer that traps contamination. (Gee — I thought the Dow Corning silicone grease was the only one we should use — but then again, I do notice an hour or more of degassing every time I put any into my system.) Call Mark at PNL: (803) 794-5974.

Transco is finally promoting Masonlite products to a greater degree, at least their glass and electrodes. For a price list write to them at **P.O. Box 4064, West Columbia, SC 29171.** They also carry the same diffusion pump and manifolds as Precision Neon Laboratories, at higher prices.

Chemglass (3861 North Mill Rd., Vineland NJ 08360; (800) 843-1794) sells greaseless stopcocks and high-vacuum glass connectors at discount prices. The person who gave us this information (I haven't seen their catalog yet) said that these are the same stopcocks sold at much higher prices elsewhere, and that they give a 50% discount to OEM customers (original equipment manufacturers). Ask for both a catalogue and price list.

Ed DeZuzio had fun with a porcelain enamel background for his neon color chart, and recommended his source: **"Rita at Walbridge Corp. (200 Nobles Town Rd., Oakdale PA 15071; (800) 535-7379)** is very nice and easy to work with; their price for the piece with 125 holes was right on too. The porcelain piece is simply gorgeous. It makes a beautiful background for luminous tubing. Its finish is unmatched by any other. It's probably the only finish you can run an icepick across without anything irreversible happening." (Which is good news if you're into icepicks.)

(Dellinger, from page 8)

As one more anecdote from our never-ending quest for data on chokes and transformers, John mentioned that "The saltwater choke is an old motion picture trick. They used that for lightning effects and such. When I read your article about it I remembered — for a while I worked for a motion picture production company and I remember hearing stories about large tanks of salt water used to limit current for lightning and arc effects."

John can be reached at Banner Magnetics, P.O. Box 1803, Shelby, NC 28151; (704) 487-7012

Notes from the neon-mad scientist...

By Joseph Keller

Last summer, I worked for a family-owned sign company that has been making tubes for over 35 years.

The manifold is the ground-stopcock type that was made in the late '50s with a vacuum pump that is probably as old. I was told that it had never been cleaned out, and seeing several inches of stopcock grease in the glass tubing, I was not one to doubt it.

The system has no milliampmeter or diffusion pump and the sliding-core choke is regulated by the use of wooden blocks.

This company makes some of the finest tubing of the highest quality in the area. I very rarely if ever had trouble with the tubes that I pumped burning in; red tubes came up to color within seconds and tubes that are 25 and 30 years old are still burning brightly from this company. I understand that repumping tubes because of premature burnout is unheard of.

My question is this: I have a fantastic greaseless Precision Neon Labs manifold, am considering a diffusion pump, looked into a choke regulator and then think back to my old job and wonder, "Am I being paranoid and blowing my dough on all this equipment whem my old boss turns out great tubes on his Betsy Ross neon equipment?"Anybody else think this way?

If anyone hasn't seen the Lili Lakich traveling neon exhibition and has the chance they should see it. A fantastic show.

Concerning the Lakich exhibit, I saw purple uncoated classic glass on one of the pieces. Where can I buy, steal, beg, borrow some?

Did you know that cramming broken glass down a tube and pumping it only makes a neon tube that takes days to burn in and doesn't crackle? Somebody please tell me how to make a crackle tube before I blow my shop up trying!!!

For those wanting a material to make a jig out of, I have seen sheetrock (the stuff that interior walls of your house are made of) used successfully. It's cheap (you can usually buy a 4x8' sheet for under $5.00), easy to cut with a handsaw or jigsaw, and pretty durable.

Be careful about the paper that is glued to the top and bottom of it, it can burn, but so can the wooden blocks that we use, our tables, our hair, our skin...

A while back, someone asked if they knew of anyone who had been hit by a bombarder and lived to tell about it.

My neon teacher, Mike King of the Neon School in Chuckie, Tennessee, was hit by his bombarder, from what I was told by his teaching assistant, when he pointed to the milliamp meter with the switch in hand while the bombarder was on. He inadvertently made the point of least resistance when an arc jumped about a foot to the switch that was in his hand.

I was told that it threw him under a table (he is a stocky man and the table was 24 inches at most underneath), did some damage, although repairable, to his heart and cracked his sternum. Mean machines.

Anyhow, he recovered fully and took precautions so that sort of thing couldn't happen again, like insulating the contact switch, covering the milliamp meter with a heavy-gauge piece of acrylic, staying really far back from the bombarder while it is running, etc.

In light of this, I mounted my contact switch on the wall as far away as I could from the bombarder and mounted the milliamp meter very near the ceiling. Unless I do anything really suicidal or incredibly dumb, I'm pretty safe.

Drawing by Trudy Pellegrino

(Bulletin Board, from page 12)

And it's **Tidewater Neon**, not Tide Water, thank you.

Perhaps the only mystery novel to feature a neon tubebender is Night Angel by Kate Green. The character in question is also a performance artist and a witch. (I seem to recall Audie's "Neon and the Supernatural" column making a similar connection...) There is one scene where the heroine throws a switch and instead of lighting up her neon, every light in the house goes out. Kinda hard to believe, but that's the trouble with knowing too much...

Quote from an ad for an **"Electric Sign Servicing" mail-order course** to strike fear (and loathing) into the hearts of installers: "NOW YOU CAN GET INTO AN UNCROWDED INDUSTRY... Basically, all you need is a ladder and transportation to get into this steady, money making business... Work from your home: Kitchen, Garage, Basement or Spare Room. If you can climb a ladder safely and if you are mindful of the value of other people's property, you may already be 90 percent qualified." (Capsule review: If you pay $40 for this slim volume, you may already be 90 percent brain-dead.)

The same entrepreneur also purports to teach neon by mail; another example of life imitating Audie's art (see NN#4, "Leon's School of Neon").

THE LIGHTER SIDE OF NEON

The good, bad, and ugly, part II: Customers

By Audie Foote

I've figured out two things about the person who originated the saying "The customer is always right." One: the person was a customer, and two: he or she was wrong — at least when we're talking about neon.

Actually, most customers are okay, as long as they stay out of your way and pay the bill when you're done. Luckily, nobody knows enough about neon to have too many definite, arguable opinions, thank god, or else we'd never hear the end of it.

Even building contractors and electricians on a job site stay the hell out of the way (something about the look of a black, 15,000-volt outdoor transformer with nasty-looking wires and ceramic terminals strikes fear in the best of them).

In this sense, we're a lot like dentists. Dentists can do whatever they like — as long as they don't hurt you too much — because you can't watch most of what they're doing, and you wouldn't understand it anyway. Nobody sees neon being made, and how many

The sign had to pass inspection by the son, who signed the agreement, but also by his irascible father, who spoke little English; his mother, who spoke too much English; another brother; his wife; their daughter; two friends; an uncle; and a pet parrot that kept squawking, "The color sucks! The color sucks!"

customers crawl up into the ceiling to see how your wiring looks?

I'd say about 90 percent of all customers are great; after all, they're the ones who keep us in business. The other ten percent? Well, I have at least one gray hair for each of the royal pains I have encountered who come from this miserable category.

I'd pay anything for a device similar to, say, a milliamp meter, which you could connect to the ears of a prospective client and get an accurate "readout" before you actually do business with them. A needle to the far left in the green area might read: "Sweetheart customer: go for it." The red area on the far right: "Total schmuck: leave immediately!"

I for one have run the entire gamut of human emotions in dealing with some of the cheap, unreasonable idiots who frequent the red zone. One of the real problems in this business is that once you make neon for a customer, you're kind of married to that person, like it or not, for at least one to two years. Most neon-makers guarantee the tubes for at least a year, and the transformer for at least six months.

During this period, the customer can call you day or night for any real or imagined problem they have with their neon. Some of the nicest people I've ever met (upon first meeting them) turn into werewolves the minute you sign a contract with them.

I just finished a couple of neon signs for a business that was "family owned" (red zone). When I gave the price and, unfortunately, signed a contract and extracted — more dental comparisons here — a down payment from these people, whom I will heretofore refer to as the Addams Family, they were as nice as could be. Why? So they could charm me into as many concessions as possible.

Two mornings later, which just happened to be Easter Sunday, I started getting calls from the Addams Family demanding to know when I was going to install, and what the hell was taking so long. When we installed the first of their two signs a week and 23 phone calls later, it had to pass inspection by not only the son, who signed the agreement, but also by his irascible father who spoke little English; his mother, who spoke too much English; another brother; his wife; their daughter; two friends; an uncle; and a pet parrot that kept squawking, "The color sucks! The color sucks!"

The second sign was wall-mounted inside the store, as per the initial agreement. The neon looked terrific as we lit it up for the first time. The whole family, including Lurch and Uncle Fester, stood back and didn't say a word until one of them — the parrot maybe? — said, "Can't you do something about those wires?"

Yes, I said, as my left eyelid began to twitch, I can drill fifty-four holes through your three-foot-thick concrete wall and connect all the wires through the offices of the neighboring store.

All of a sudden, the father spoke English. "Then can you do that, now?"

Then as my right eyelid started to twitch as well, I pulled the contract out of my pocket and pointed to the section that stated that all wiring must be done on the surface since no other possibility existed. Now even the son who signed the contract no longer spoke English.

Well, to make a long story short, it was a nightmare dealing with these people. I finally collected the last of what they owed me by arriving with a ladder to take one of the signs back.

The father came out and spoke better English than Sir Laurence Olivier: "Excuse me, what exactly are you doing?"

I said, "If you don't want to pay for it, it means you don't want it."

"Well," he said, "perhaps I should write you a check then."

So I slowly came down the ladder and looked him right in the eye and said, "Then can you do that? Now?"

Jingle bell rock

We installed neon at this nightclub called the Pink Cadillac, and a few days later I get this call, "The neon is making noise!"

I couldn't imagine what he was talking about, and I'm thinking to myself, "This is going to be priceless" as I head down there.

I'd used Eurocom electrodes, and what happened is they have this sound system rigged in such a way that every time a bass note hit, every single electrode would jingle.

I started laughing and told the guy, "This is unbelievable."

He said, "What are you going to do about it?"

I said, "Listen! It jingles with the music, doesn't it?"

He said, "Well, yeah, that's true."

I said, "Learn to live with it!" But we did move the bass speaker, to help it a little bit.

— Audie Foote

CLASSIFIED ADS

NEON SIGN COLOR POSTCARDS: Pontiac Indian, Buster Brown, Mobilgas Flying Horse, Simple Simon, etc. 50 cards $13.50. Davidson, 860 N. 26 St., Philadelphia PA 19130; (215) 232-0478

USED EQUIPMENT FOR SALE: Marvac #1892 vacuum pump w/motor $500. 7.5KVA bombarder w/choke $600. Hyde 16" ribbon burner (propane) w/economizer $280. Opaque projector $55. Spark coil $45. Call Ted: (808) 967-7648

WANTED: SMALL NEON PLANT OR EQUIPMENT: John Dellinger, R.D. Box 1803, Shelby NC 28151; (704) 487-7012

LOOKING FOR SOMEONE in the Bay Area willing to instruct in neon tube bending; (415) 537-4422

BULLETIN BOARD

Tom Cramer at Just Neon (Warren OH) sent a sketch and this note: "Here is an outline of a tipping torch that I believe was a common torch of years past. This is my last torch and I'm having difficulty locating more. Where can I get these? They work so well that it's hard to believe that someone isn't manufacturing these somewhere in the world." ***Editor's note: — I too have looked all over and couldn't find a source. I happened to get a used one from an old shop, and they are the best for tipping off tubulations. These are the one-piece kind with chrome plated-tubing; the tips are not removable.***

Tom continues: "Also, I received an answer to a question I submitted about the refractory material used in making neon jigs; it's called maronite and it can be purchased through kiln supply houses. (The answer came from Lightn' Up Neon in Wash. DC; thanks **Marty.**)"

Barney Hector at Landmark Signs in Forth Smith AR wonders: "How much is 1953 Sylvania Ruby 15mm worth? I ran into a case and since it's obsolete I have no idea of the value. Also picked up a little cobalt blue — it looks black."

Mike Weber of Mike's Off the Wall Lighting (also in Fort Smith) sent us this query on single-electrode tubes:

"I have had no luck getting regular tubes to light more than a few inches up from the electrode when using only one lead from a solid-state transformer. I have tried Neon Dynamics, ROCUS, and Tech 2000 transformers and various pressures (2 to 20mm) so I assume I'm doing something wrong. Do you have to do something to the other transformer lead to make it work properly?

"I saw a small neon musical note that had been make in Hong Kong that used a solid state transformer and one electrode, which appeared to be homemade. There was a small extension blown out from the side of the electrode and either a ground wire or transformer return wire wrapped tightly around it.

"I tried making a single-electrode tube using Peter David's method (NN#6) where a second electrode is attached to the opposite end of the tube with a short piece of tubulation glass. What happens is that the tubulation glass overheats and begins to melt before the larger-diameter glass gets hot enough due to the difference in mass." Any advice, folks?

A question from **Anthony Merchell** of the Shinsen Group in L.A.: "I am interested in using some kind of solid state power supply to drive 4500° K cold cathode neon." Anybody have an answer on this?

Susan Steinberg at Savage Neon wrote to both recommend **Technolux** glass (see our suppliers column) and to say that she "Recently wore neon on my chest powered by 8 D-cell batteries and Tunewell DC transformer — and it flashed! (Flashing with all my clothes on!)"

The indefatigable **Ed DeZuzio** answers this famous flasher's former query: "Susan Steinberg asked if there was a need for a m.a. meter when using electronic transformers. There most likely is but the standard one available through sign suppliers won't do, as it is set up for 60 cycles.

"The best (actually the only) info I've found is from the **Neon Dynamics** dudes. Their reply to 'How do I know when the transformer is putting out enough or too much voltage?' was if the tubes aren't flickering and the trans isn't screaming then that's it." ***(However, Ed then critiques this advice with a lot of ranting about its imprecision, so maybe he's really answering a question with a question...)***

For those of you who gave up on **Sign Business** magazine because it rarely covered neon: it now has a regular neon tech column that's highly informative (if not always in agreement with your pet opinions) by Roger Ligrano of Seattle. Get it from P.O. Box 1416, Broomfield CO 80038.

Also fairly new in the publishing world is **Sign Builder Illustrated**, a bi-monthly available for $10/year ($39 overseas) from P.O. Box 106, Farmville, NC 27828. The issue we got (#11) had an interesting article on NEC rules applying to typical neon wiring shortcuts.

For a well-written, engrossing read on New York's **Artkraft Strauss Sign Co.**, check out **Inc.** magazine's Jan. '91 story titled "Daddy Dearest."

"Spell My Name Right" dep't: Neon to Go, listed in NN#5, is in **Tarpon Springs FL**, not New York (it moved three years ago.)

(see Bulletin Board, page 10)

THE NEON NEWS

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